F.C. Bawden, Esq., F.R.S.,
Rothamsted Experimental Station,
Harpenden, Herts.

18th October, 1957.

Dear Mr. Bawden,

The measurement of the radial density distribution in the cow-pea and tobacco forms of the TMV strain which you sent me a long time ago are at last completed. As you will see from the enclosed graphs the cow-pea form is very different. Its X-ray diagram is also strikingly different from that of normal TMV. The difference between the tobacco form and normal TMV is slight, but, since there is a noticeable difference on the photographs, it is probably genuine.

The most variable part of the structure seems to be the part of the protein which lies inside the nucleic acid. This is true also of the other strains which we have examined.

Very roughly, the difference between normal TMV and the cow-pea form is of the same magnitude (but not of the same kind) as that between TMV and CV4.

The density in the cow-pea strain falls off very sharply beyond 80 A, suggesting that it has less of a groove - or smaller protruberances - than the other strains.

Is anything published or known about chemical differences?

We are proposing to publish the density distributions of the various strains in a short paper in Virology. I shall send you the manuscript when ready, but meanwhile it would be nice to have your comments and to hear of any new information about these strains.

Yours sincerely,

Rosalind Franklin.